

**DETECTION OF MULTIPLE WATERMARKS AND IMPROVED**  
**WATERMARK CALIBRATION SIGNALS**

Abstract of the Disclosure

5           Steganographic calibration signals (sometimes termed “orientation signals,”  
“marker signals,” reference signals,” “grid signals,” etc.) are sometimes included with  
digital watermarking signals so that subsequent distortion of the object thereby marked  
(e.g., a digital image file, audio clip, document, etc.) can later be discerned and  
compensated-for. Digital watermark detection systems sometimes fail if the object  
10           encompasses several separately-watermarked components (e.g., a scanned magazine page  
with several different images, or photocopy data resulting from scanning while several  
documents are on the photocopier platen). Each component may include its own  
calibration signal, confusing the detection system. In accordance with certain  
embodiments, this problem is addressed by a proximity-based approach, and/or a  
15           multiple grid-based approach. In accordance with other embodiments, the calibration  
signal can – itself – convey watermark information, so it serves both a calibration and a  
payload-conveyance function.